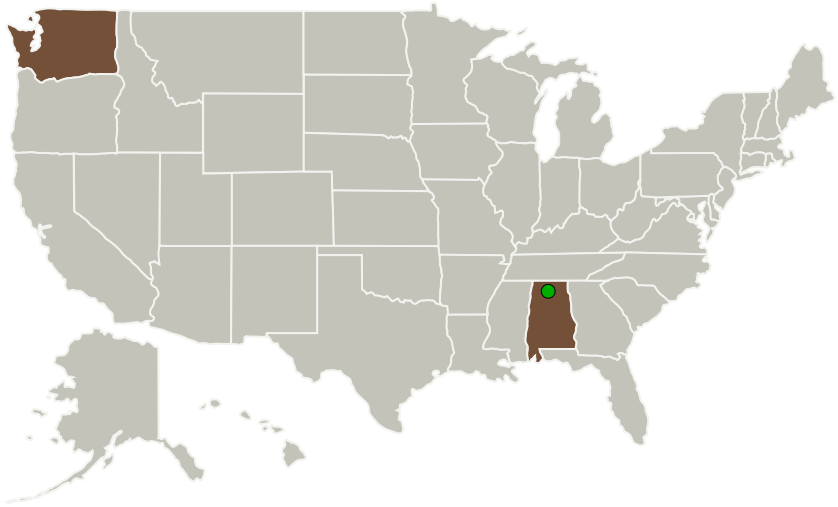
Low Cost Method of Manufacturing Space Optics, Phase I

Completed Technology Project (2013 - 2013)

Project Introduction

Proposed is the development of a manufacturing technology that will increase feasible large optics design options and significantly reduce the manufacturing time, cost and risk involved in manufacturing large optic components. Specifically addressed are cutting and light weighting of glass and ceramic optical components. While milling and cutting materials such as ULE or SiC is often performed at Ormond using a novel technology, there is a need to develop this technology to a point where the risk of machining large optics made from these materials is acceptably low and NASA and its contractors understand the technical and cost performance. Development is needed to address engineering requirements of large optics and to advance production readiness. In Phase I, proprietary glass and ceramic cutting and milling technologies will be adapted to space optics requirements through software, process and tool development. Performance data will be immediately available to support ongoing NASA programs and to set the groundwork for Phase II. Key risk reduction methods will be identified. The Phase I workscope will involve NASA primes to demonstrate and prove the feasibility of implementing the proposed technology in large optics manufacturing. Phase II will result in a commercial ready means of cutting and milling large optics.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Ormond, LLC	Lead Organization	Industry	Auburn, Washington
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations	
Alabama	Washington

Project Transitions

May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140449)*

Images

Project Image
Low Cost Method of Manufacturing Space Optics
(https://techport.nasa.gov/image/130135)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Ormond, LLC

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

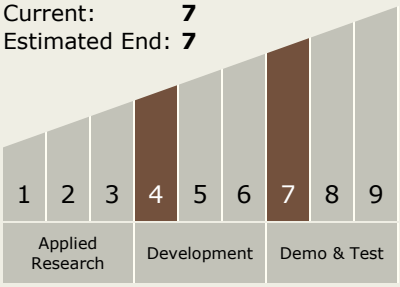
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Daniel Alberts

Technology Maturity (TRL)

Start: **4**
Current: **7**
Estimated End: **7**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.4 Manufacturing
    - TX12.4.1 Manufacturing Processes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System